AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of the claims:

1. (currently amended) An integrated electrofluidic system comprising:

a support platform including a plurality of laminated layers ~~each comprised of a polymer material with a thin layer of adhesive~~;

an electronic control system mounted on said support platform;

a microfluidic system embedded in said platform and having an input and an output ~~formed by processing said plurality of laminated layers to embed said microfluidic system thereon and for defining~~ configured to define at least one electrofluidic component thereon and configured to circulate a fluid over surfaces of the at least one fluidic component and;

~~an input and an output in fluidic communication with said microfluidic system;~~

~~at least one electrofluidic component; and~~

at least one electrical conductor carried by said platform for electrically interconnecting said electronic control system and said at least one electrofluidic component.

2. (cancelled)

3. (original) The integrated electrofluidic system of claim 1 in which said

platform includes a polyimide material.

4. (original) The integrated electrofluidic system of claim 1 in which said platform includes KAPTON®.

5. (original) The integrated electrofluidic system of claim 2 in which said layers are laminated using a phenolic resin adhesive.

6. (original) The integrated electrofluidic system of claim 5 in which said phenolic resin adhesive is R/FLEX®.

7. (original) The integrated electrofluidic system of claim 5 in which said phenolic resin adhesive is etched to a thickness of 3 to 10 μm.

8. (original) The integrated electrofluidic system of claim 5 in which said phenolic resin adhesive is selectively removed from regions where bonding is undesirable between said layers and/or between a said layer and said electrofluidic component and/or a microfluidic component.

9. (withdrawn) The integrated electrofluidic system of claim 1 in which said microfluidic system includes a valve.

10. (withdrawn) The integrated electrofluidic system of claim 1 in which said microfluidic system includes a pump.

11. (withdrawn) The integrated electrofluidic system of claim 1 in which said microfluidic system includes a reservoir.

12. (withdrawn) The integrated electrofluidic system of claim 1 in which said microfluidic system includes a mixer.

13. (original) The integrated electrofluidic system of claim 1 in which said microfluidic system includes at least one channel.

14. (withdrawn) The integrated electrofluidic system of claim 1 in which said microfluidic system includes a filter.

15. (withdrawn) The integrated electrofluidic system of claim 1 in which said microfluidic system includes a dispenser.

16. (withdrawn) The integrated electrofluidic system of claim 1 in which said microfluidic system includes a reactor.

17. (withdrawn) The integrated electrofluidic system of claim 1 in which said

microfluidic system includes a heater.

18. (withdrawn) The integrated electrofluidic system of claim 1 in which said microfluidic system includes a concentrator.

19. (withdrawn) The integrated electrofluidic system of claim 1 in which said microfluidic system includes a pressurizing device.

20. (withdrawn) The integrated electrofluidic system of claim 1 in which said microfluidic system includes a cooling device.

21. (withdrawn) The integrated electrofluidic system of claim 1 further including a sensor device integrated with said microfluidic system.

22. (withdrawn) The integrated electrofluidic system of claim 21 in which said sensor device is embedded in said platform.

23. (withdrawn) The integrated electrofluidic system of claim 21 in which said sensor device includes a flexure plate wave sensor.

24. (withdrawn) The integrated electrofluidic system of claim 21 in which said sensor device includes a photoelectric sensor device.

25. (withdrawn) The integrated electrofluidic system of claim 21 in which said sensor device includes an optical sensor device.

26. (withdrawn) The integrated electrofluidic system of claim 21 in which said sensor device includes an electrochemical sensor device.

27. (withdrawn) The integrated electrofluidic system of claim 21 in which said sensor device includes a temperature sensor device.

28. (withdrawn) The integrated electrofluidic system of claim 21 in which said sensor device includes a pressure sensor device.

29. (withdrawn) The integrated electrofluidic system of claim 21 in which said sensor device includes a flow sensor device.

30. (withdrawn) The integrated electrofluidic system of claim 21 in which said sensor device includes a viscosity sensor device.

31. (withdrawn) The integrated electrofluidic system of claim 21 in which said sensor device includes a mass sensor device.

32. (withdrawn) The integrated electrofluidic system of claim 21 in which said sensor device includes a magnetic sensor device.

33. (withdrawn) The integrated electrofluidic system of claim 21 in which said sensor device includes an acoustic sensor device.

34. (withdrawn) The integrated electrofluidic system of claim 1 further including a dispenser device integrated with said microfluidic system.

35. (withdrawn) The integrated electrofluidic system of claim 1 further including a heat exchange device integrated with said microfluidic system.

36. (withdrawn) The integrated electrofluidic system of claim 34 in which said dispenser device includes a drug delivery device.

37. (withdrawn) The integrated electrofluidic system of claim 1 further including a fuel cell device integrated with said microfluidic device.

38. (withdrawn) An integrated electrofluidic system comprising:

a support platform including a plurality of laminated layers each comprised of a polymer material with a thin layer of adhesive;

an electronic control system mounted on said support platform;

a microfluidic system formed by processing said plurality of laminated layers to embed said microfluidic system thereon and for defining at least one electrofluidic component thereon;

an input and an output in fluidic communication with said microfluidic system;

at least one electrofluidic component;

at least one electrical conductor carried by said platform for electrically interconnecting said electronic control system and said at least one electrofluidic component; and

a sensor integrated with said electrofluidic system.

39. (withdrawn) The integrated electrofluidic system of claim 38 in which said platform includes a plurality of laminated layers forming said embedded microfluidic system.

40. (withdrawn) An integrated electrofluidic system comprising:

a support platform including a plurality of laminated layers; each comprised of a polymer material with a thin layer of adhesive;

an electronic control system mounted on said support platform;

a microfluidic system formed by processing said plurality of laminated layers to embed said microfluidic system thereon and for defining at least one electrofluidic component thereon;

an input and an output;

at least one electrofluidic component;

at least one electrical conductor carried by said platform for electrically interconnecting said electronic control system and said at least one electrofluidic component; and

a dispenser device integrated said electrofluidic system.

41. (withdrawn) The integrated electrofluidic system of claim 40 in which said platform includes a plurality of laminated layers forming said embedded microfluidic system.

42. (withdrawn) The integrated electrofluidic system of claim 40 in which said dispensing device dispenses fluid in the range of about 100 microliters to 100 picoliters.

43. (withdrawn) The integrated electrofluidic system of claim 40 in which said dispensing device dispenses fluid at a rate of about 0.1 to 100 microliters/min.

44. (withdrawn) An integrated electrofluidic system comprising:

a support platform including a plurality of laminated layers; each comprised of a polymer material with a thin layer of adhesive;

an electronic control system mounted on said support platform;

a microfluidic system formed by processing said plurality of laminated layers to embed said microfluidic system thereon and for defining at least one electrofluidic component thereon;

an input and an output;

at least one electrofluidic component;

at least one electrical conductor carried by said platform for electrically interconnecting said electronic control system and said at least one electrofluidic component; and

a heat exchange device integrated with said electrofluidic system.

45. (withdrawn) The integrated electrofluidic system of claim 44 in which said platform includes a plurality of laminated layers forming said embedded microfluidic system.